

Serial Number:

09/761,466

CRF Processing Date:

7/10/2001

Edited by:

Verified by:

(STIC staff)

**ENTERED**

- ☐ Changed a file from non-ASCII to ASCII
- ☐ Changed the margins in cases where the sequence text was "wrapped" down to the next line.
- ☐ Edited a format error in the Current Application Data section, specifically: \_\_\_\_\_
- ☐ Edited the Current Application Data section with the actual current number. The number inputted by the applicant was ☐ the prior application data; or ☐ other \_\_\_\_\_
- ☐ Added the mandatory heading and subheadings for "Current Application Data".
- ☐ Edited the "Number of Sequences" field. The applicant spelled out a number instead of using an integer.
- ☐ Changed the spelling of a mandatory field (the headings or subheadings), specifically: \_\_\_\_\_
- ☐ Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were: \_\_\_\_\_
- ☐ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited: \_\_\_\_\_
- ☐ Corrected subheading placement. All responses must be on the same line as each subheading. If the applicant placed a response below the subheading, this was moved to its appropriate place.
- ☐ Inserted colons after headings/subheadings. Headings edited included: \_\_\_\_\_
- ☐ Deleted extra, invalid, headings used by an applicant, specifically: \_\_\_\_\_
- ☐ Deleted: ☐ non-ASCII "garbage" at the beginning/end of files; ☐ secretary initials/filename at end of file; ☐ page numbers throughout text; ☐ other invalid text, such as \_\_\_\_\_
- ☐ Inserted mandatory headings, specifically: \_\_\_\_\_
- ☐ Corrected an obvious error in the response, specifically: \_\_\_\_\_
- ☐ Edited identifiers where upper case is used but lower case is required, or vice versa.
- ☐ Corrected an error in the Number of Sequences field, specifically: \_\_\_\_\_
- ☐ A "Hard Page Break" code was inserted by the applicant. All occurrences had to be deleted.
- ☐ Deleted *ending* stop codon in amino acid sequences and adjusted the "(A)Length:" field accordingly (error due to a PatentIn bug). Sequences corrected: \_\_\_\_\_
- ☒ Other: *Seq 1, 3, 6 - moved nucleic acid ind to take up one line*

\*Examiner: The above corrections must be communicated to the applicant in the first Office Action. DO NOT send a copy of this form.

7/1/95

**BEST AVAILABLE COPY**

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/761,466

DATE: 07/10/2001

TIME: 17:36:08

Input Set : A:\Pto.amc

Output Set: N:\CRF3\07102001\I761466.raw

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5      Izumo, Seigo
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8      and Uses Thereof
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13 <141> CURRENT FILING DATE: 2001-01-16
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## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/761,466

DATE: 07/10/2001

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215 &lt;213&gt; ORGANISM: Homo sapiens

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220 &lt;223&gt; OTHER INFORMATION: n = A,T,C or G

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234 catctctctc aacgacaccc cccccgccc gcctctgaaa acaatcttca aaaggcaagg      720
W--> 235 gggcccccca agtaggttaa tttacaacca taacggtaac gtggccaaaa gncaggcgag      780
236 gaagggccgc aaggccgctg acatgcaagc tccgtccaag aagaatttgg gttggaggtg      840
W--> 237 aagaggtggg gggacgaggt ttcttgggcc ttgaacgccc cacattttaa aaaggcatcc      900
238 tccacagact agactaacia ttccagaccc ccagtagtcc ctggctcaga aactcgagcc      960
239 gtgatttcgg cgtggcagcc caggcctgtt actgacggct ggccctaga agccgggtc      1020
240 agggcggttg ggcctcctg ggcctcctg cggggtcac ctctctccc agcatggagg      1080
241 cccaggttcc tgggagtgtg gctttgatga gggacaggaa aagtcacac atcaggccaa      1140
242 tcttgaactt caattgcgtc ggctctcag acggcacact gtcgggtttg agcacccaa      1200
243 atgtacgttc tggacagaca ctattttgtc cccatacatg gacgttttc tccgacctt      1260
244 gggcgcgctt gggggagctg tctctttagg tagtttttg cctgcgcgc cctttattct      1320
245 actccaagcg ctctttgcca aaccgcact ccgcaagag ccaagccct cactccccca      1380
246 ttctcagcaa gtccacgct cccgccagc tcccgcccg cgttccctg taccagctag      1440
247 ggcctgaga agccaacgct ttccactga caaatcctgt catccccagc tctagaaggc      1500
248 gtccttaacc tgggcccgt ctgcctgcc ggaactctga attgtaagca aaataaaact      1560
249 cctctctgca gtgttctggg gaatggagaa gacccaagc ttctatcaga cctcccaa      1620
250 gagtgccggg acccagagaa atgaggccac ccgggcagga tctggccatg tagctgggc      1680
251 tctgaaact ctggcagatt tgtctgaact ctgtgcctta ctctactgac cctgggctaa      1740
252 aaatgatcat gatcaccca cttgccctgc cttccccca cgcgcctgac cgagccgcag      1800
253 gggtgcccca ctggaagtc ggccagagg cctcagagaa atcctggcct agctgggctc      1860
254 agaggagccc cgtctccctg agagctaaac ctgggctaqq accctgaaac ctcgaggttg      1920
255 gcagaagcct gagggccttg ctgccagga gggagggcac gggagggagg gaggtgggt      1980
256 cgatggcctc caaacagggg aaacaagggt gctggtagct ggggcactcc acaagacagg      2040
W--> 257 tgtntcctgg gaagctgagc ttaccagctg ggattcctga tttatttcat tattaagggg      2100
258 agaggcattt cccctgggag ggtactggca gtgactgat cccctggag ttgtgctgtg      2160
259 cataacacta ctgtaggagg cagcaactcc taccacactt ggcataact cacttgccc      2220
260 ttactttcgt tgattgcctc agaagcacc agagcctgcy gcatgattga cctgtaggc      2280
261 caagccaaac caaaccccc aattgtccag aattttcgcc ctgggtgate cccaaagccc      2340
W--> 262 agccctgtct ttnagggttt ttttctatt gagattttcc ctcatccac cacctttagt      2400
263 aataaagcct tctcaaaact aatttctct ccacgccttc ccaccccat cttttttttt      2460
264 cccatgctgg tttgggtgct gaggaatatt ttttcaaac cacacccat cagccctgac      2520

```

## VERIFICATION SUMMARY

PATENT APPLICATION: US/09/761,466

DATE: 07/10/2001

TIME: 17:36:09

Input Set : A:\Pto.amc

Output Set : N:\CRF3\07102001\I761466.raw

L:111 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:210 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:223 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:224 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:235 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:237 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:257 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:262 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:265 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:267 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:286 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:287 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:288 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:329 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:330 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:331 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:332 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:333 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:334 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5

OIPE

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/761,466

DATE: 06/21/2001

TIME: 16:24:24

Input Set : A:\PTO.txt

Output Set: N:\CRF3\06212001\I761466.raw

Does not match  
Corrected sequence

4 <110> APPLICANT: Lee, Ike W.  
5 Izumo, Seigo  
7 <120> TITLE OF INVENTION: Cardiac-Cell Specific Enhancer Elements  
8 and Uses Thereof  
10 <130> FILE REFERENCE: 01948/069002  
12 <140> CURRENT APPLICATION NUMBER: US 09/761,466  
13 <141> CURRENT FILING DATE: 2001-01-16  
15 <150> PRIOR APPLICATION NUMBER: US 60/176,419  
16 <151> PRIOR FILING DATE: 2000-01-14  
18 <160> NUMBER OF SEQ ID NOS: 20  
20 <170> SOFTWARE: FastSEQ for Windows Version 4.0

## ERRORED SEQUENCES

22 <210> SEQ ID NO: 1  
23 <211> LENGTH: 375  
24 <212> TYPE: DNA  
25 <213> ORGANISM: Mus musculus  
27 <400> SEQUENCE: 1

E--> 28 ~~agggcccccg caccctcacc ctggtctccg cccctctctt ccacctccc ggacctctaa~~ *60*  
W--> 29 ~~60agggggcgcg gggcccaagc cgagggcgct ggcctgacc ccgagcggaa gggccccagt~~ *120*  
W--> 30 ~~120ctaggtccta atgcgggtgg cgtctccttt gacagggcgc gtttggggac aacagcgggg~~  
W--> 31 180acgagagata aggtgacata ccagagcaga tttggtgcgc gcctgatac tctctcccg  
W--> 32 240acaggaaacg cggagctatt taaaagacct tatcgattac tttatctttc ctggaaagct  
W--> 33 300ctttgaggag agacaaaaga tgttccctgc ctaaagacac aaggccacac aacggagggt  
E--> 34 360ctgcacaggc gacgc *375*

44 <210> SEQ ID NO: 3  
45 <211> LENGTH: 1072  
46 <212> TYPE: DNA  
47 <213> ORGANISM: Homo sapiens  
49 <400> SEQUENCE: 3

E--> 50 agggcccccg caccctcacc ctggtctccg cccctctctt ccacctccc ggacctctaa  
W--> 51 60agggggcgcg gggcccaagc cgagggcgct ggcctgacc ccgagcggaa gggccccagt  
W--> 52 120ctaggtccta atgcgggtgg cgtctccttt gacagggcgc gtttggggac aacagcgggg  
W--> 53 180acgagagata aggtgacata ccagagcaga tttggtgcgc gcctgatac tctctcccg  
W--> 54 240acaggaaacg cggagctatt taaaagacct tatcgattac tttatctttc ctggaaagct  
W--> 55 300ctttgaggag agacaaaaga tgttccctgc ctaaagacac aaggccacac aacggagggt  
W--> 56 360ctgcacaggc gacgcacaat tcggcgcggy gaaagcaaaa acacactgac gcttagagt  
W--> 57 420cacaacagtg tgtgttccca gacgagctcc agagtgcgcg agggacgctg ggggcggcga  
W--> 58 480ggggcaccca cagtatggtc ttctgtgccc ttggaaagtt tttttcacc gtatgcgcgt  
W--> 59 540aaaacacgca cacacagaga aagtgactgt gcacttaggg cgctgtgtg taccctgtc  
W--> 60 600gttttagcga atttaaagca catcaggccg ggcgccatgg ctcacgcctg taatccagc  
W--> 61 660acttttaggag gccgaggcgg gccgatcacc tgaggtcggg agttcgacac cagcctggcc  
W--> 62 720aacatggtga aacctgtct ctacaaaaaa tacaaaaatt agccgggcat ggtgatgcgt  
W--> 63 780gcctgtgatc ccagctactc gggaggctga ggcaggagaa tcgcttgaa cggggaggcg  
W--> 64 840gaggttgagc tgagccgaga tcacaccact gcactccagc ctgggcgaca agagcgaat

*Have to take  
60 eye*

*same  
2nd*



## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/761,466

DATE: 06/21/2001

TIME: 16:24:24

Input Set : A:\PT0.txt

Output Set: N:\CRF3\06212001\I761466.raw

```

W--> 65 900tccgtctaaa aaaataaaat aaaataaaat gataattaag cccatcaact cacattcaaa
W--> 66 960gcggttactg gtggttgtaa tgtatccata gacacaggtc taaaatgtaa acgctccatt
E--> 67 1020gtgtcccttt taagggettg aatgtctgca actgtcatgt gtacacttaa ag      1072
    337 <210> SEQ ID NO: 6
    338 <211> LENGTH: 478
    339 <212> TYPE: DNA
    340 <213> ORGANISM: Homo sapiens
    342 <400> SEQUENCE: 6
E--> 343 agagaaatca ttaccgatt cacaaagagc atagagagtg taacagtcac tgatcttggt
W--> 344 60caaataggga gagttttttt tccttccett ttgtaacac ctgaccacac ggactgacag
W--> 345 120ttctaggaag ccccttacc cgaaaatagg aaataaatcc ttgccacctt gatttgcaag
W--> 346 180ggcaatgcta atttttttct ttctccagag ctctcaaaaa aaaaaaaaaa aaaaccttac
W--> 347 240taaaaacagg gateccggat gtagcctcga tgtcccccac taaacggtaa tatttcaggc
W--> 348 300gtccgctcac actaatcttt caaactgtca tcgcgagcgc cctggccagc agattcactt
W--> 349 360aacagcgctc ccaggacct cgttccgagc tcttttcagc gagacattta attgaatcgg
E--> 350 420atgtggctcg ttgcccagac gtcaccgcct cggcgatagg catcctctcc aacgacac      478

```

## VERIFICATION SUMMARY

PATENT APPLICATION: US/09/761,466

DATE: 06/21/2001

TIME: 16:24:26

Input Set : A:\PTO.txt

Output Set: N:\CRF3\06212001\I761466.raw

L:28 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:60 SEQ:1  
 L:29 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:30 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1  
 L:30 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:31 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1  
 L:31 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:32 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1  
 L:32 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:33 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1  
 L:33 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:34 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1  
 M:254 Repeated in SeqNo=1  
 L:34 M:320 E: (1) Wrong Nucleic Acid Designator, NUMBER OF INVALID KEYS:3  
 L:34 M:252 E: No. of Seq. differs, <211>LENGTH:Input:375 Found:75 SEQ:1  
 L:50 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:60 SEQ:3  
 L:51 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:52 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:52 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:53 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:53 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:54 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:54 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:55 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:55 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:56 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:56 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:57 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:57 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:58 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:58 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:59 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:59 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:60 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:60 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:61 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:61 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:62 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:62 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:63 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:63 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:64 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:64 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:65 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:65 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:66 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 L:66 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:67 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:3  
 M:254 Repeated in SeqNo=3

## VERIFICATION SUMMARY

PATENT APPLICATION: US/09/761,466

DATE: 06/21/2001

TIME: 16:24:26

Input Set : A:\PTO.txt

Output Set: N:\CRF3\06212001\I761466.raw

L:67 M:320 E: (1) Wrong Nucleic Acid Designator, NUMBER OF INVALID KEYS:4  
 L:67 M:252 E: No. of Seq. differs, <211>LENGTH:Input:1072 Found:112 SEQ:3  
 L:111 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
 L:210 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
 L:223 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:224 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:235 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:237 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:257 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:262 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:265 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:267 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:286 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:287 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:288 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:329 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:330 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:331 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:332 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:333 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:334 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
 L:343 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:60 SEQ:6  
 L:344 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:345 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:6  
 L:345 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:346 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:6  
 L:346 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:347 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:6  
 L:347 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:348 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:6  
 L:348 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:349 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:6  
 L:349 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:6  
 L:350 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:6  
 M:254 Repeated in SeqNo=6  
 L:350 M:320 E: (1) Wrong Nucleic Acid Designator, NUMBER OF INVALID KEYS:3  
 L:350 M:252 E: No. of Seq. differs, <211>LENGTH:Input:478 Found:118 SEQ:6